

Cervical Cancer

Definition: Cancer of the uterine cervix is characterized by uncontrolled growth of neoplastic cells developing in the cervix of the uterus, with the potential to invade and spread to other sites. A Pap smear is a screening test in which a sample of cells taken from the cervix is microscopically examined for signs of malignancy.

ICD 9 code 180

Summary

Nearly all deaths from cervical cancer can be eliminated through early detection using Pap smears. When cervical cancer is found at its earliest stage (*in situ* cervical cancer), the disease is about 99 percent curable. Nevertheless, 71 Washington women died from invasive cervical cancer in 1994. Cervical cancer risk is highest in lower socioeconomic status groups and among women of color. Efforts to increase the proportion of women who receive regular Pap smear screening, particularly those in high risk groups, are the main focus for cervical cancer prevention.

Time Trends

Both the state and national data show a decrease in mortality rates from 1980 through 1992. In fact, cervical cancer mortality has dropped by about 75% over last 40 years, due in large part to organized screening programs.^{1 2}

Cervical cancer death rates in Washington have been consistently lower than national rates since 1980.

Year 2000 Goal

Washington's goal for the year 2000 is an age-adjusted cervical cancer death rate of 1.9 per

100,000 women or lower. Cervical cancer mortality in 1994 was 2.3/100,000 females.

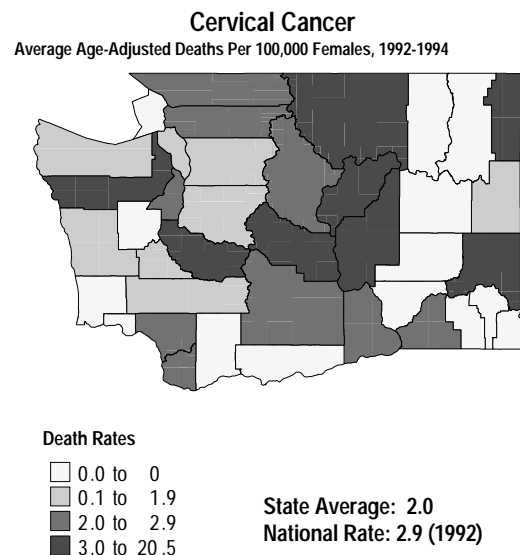
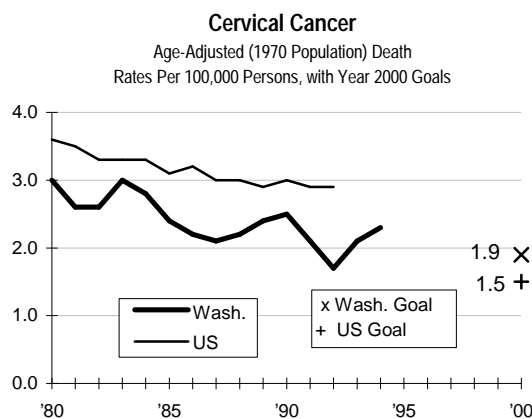
Two related Washington goals are:

1) Increase the proportion of women age 18 and older who report ever having had a Pap smear to 98%. In 1994, this proportion, which has varied little since it was first measured in 1987, was 96.2% (± 1).

2) Increase the proportion of women age 18 and older who report having had a Pap smear in the previous three years to 90%. In 1994, this proportion, which has remained essentially stable since 1987, was 87.2% (± 1.9). (See technical note.)

Geographic Variation

The map below displays average annual age-adjusted mortality due to cervical cancer by county for 1992-1994. The counties with the highest rates were Pend Oreille, Kittitas, Douglas, Grant, Whitman, Okanogan, Jefferson, Pierce, Clark, and Walla Walla. The counties with the lowest rates were Wahkiakum, Stevens, Skamania, San Juan, Pacific, Mason, Lincoln, Klickitat, Garfield, and Franklin. For many counties, the rates presented are based on very small numbers and are subject to



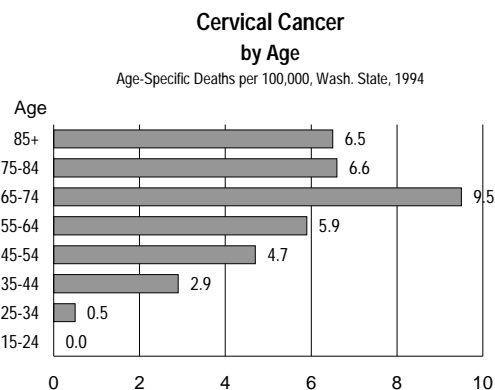
considerable year-to-year fluctuation. Reliable assessment of cervical cancer at the local level, and comparing the experience of various areas of the state, requires examination of several years of cervical cancer deaths.

1992-94 data on Pap smear screening analyzed by region across the state showed the lowest proportion of women reporting ever having a Pap smear ($89\% \pm 6.9$) in the region comprised of Adams, Ferry, Grant, Lincoln, Pend Oreille, and Stevens Counties. The highest proportion was found in Island, San Juan and Skagit Counties. The combined figure for these counties was $99.2\% (\pm 1.1)$. The US proportion for 1993 was 95% .

Among women age 18 and older, the region with lowest proportion reporting a Pap smear in the previous three years was again Adams, Ferry, Grant, Lincoln, Pend Oreille, and Stevens Counties, with $75.4\% (\pm 9.9)$. The highest proportion ($93.7\% \pm 4.7$) was in Island, San Juan and Skagit Counties. Nationwide in 1993, 78% of women reported a recent Pap smear.

Age

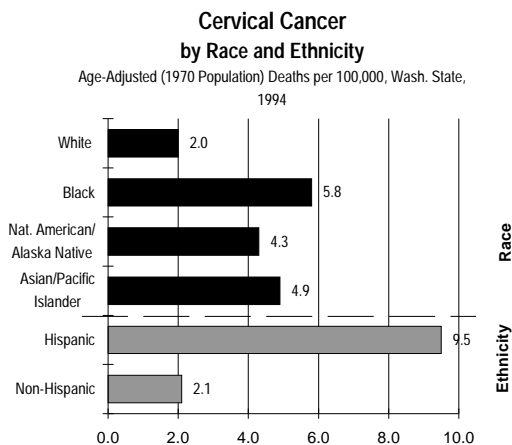
Cervical cancer affects young women more commonly than most other cancers. Over the past 5 years, an average of 56% of the deaths occurred in the 25-64 age group. The highest mortality rates, however, are found among women over age 65.



Older women are notably less likely to receive regular cervical cancer screening. Among Washington women age 65 and older surveyed in 1994, 76.4% reported receiving a Pap smear in the previous three years. The proportion among women under 65 was 88.8%

Race and Ethnicity

1994 data for Washington show higher mortality due to cervical cancer for African Americans, Native Americans, Asian/Pacific Islanders and Hispanics than for Caucasians. These figures vary substantially from year to year, due to small numbers of deaths. Nonetheless, the findings are consistent with those of larger studies.



Between 1981-1990, the average annual cervical cancer death rate among white women in Washington was $2.1/100,000$. The rates among women of color were 5.7 for Native Americans, 3.7 for Asians and Pacific Islanders, and 3.7 for African-Americans. Nationwide, African American mortality due to cervical cancer is 2.4 times the Caucasian rate.³ Also, African American women tend to develop invasive cervical cancer at younger ages than Caucasians.⁴

Data limitations preclude analysis of Pap smear rates for individual racial and ethnic minority groups in Washington. However, $8.3\% (\pm 5.2)$ of non-Caucasian women surveyed in 1994 reported never having had a Pap smear, compared to $3.4\% (\pm 1)$ for Caucasians. Among non-Caucasians, $85.3\% (\pm 6.8)$ reported a Pap smear in the previous three years, while $87.3\% (\pm 2)$ of Caucasians did so. While these differences are not statistically significant, due to the small number of women of color included in the statewide survey sample, real differences may exist. National data consistently show Hispanic women to be less likely to report Pap smear screening than non-Hispanics.⁵

Income and Education

Washington State data on cervical cancer mortality by income and education are not currently available. However, low socioeconomic status (SES) is a major risk factor for cervical cancer mortality.⁶

Pap smear screening utilization is strongly associated with socioeconomic factors. Statewide in 1994, 73.5% (± 8.7) of women 18 years of age and older with less than high school education reported a Pap smear in the previous three years, compared to 89.7% (± 2.2) of women with higher educational attainment. Among women with household incomes under \$20,000 per year, 80.2% (± 4.1) reported a recent Pap smear, compared to 89.3% (± 2.4) of women in more affluent households.

Other Measures of Impact and Burden

Incidence. In 1993, 210 cases of invasive cervical cancer were diagnosed in Washington State, an age-adjusted incidence of 6.5 cases per 100,000 women. Incidence of invasive cervical cancer has declined dramatically nationwide over the last several decades, but this trend has been leveling off in recent years.⁷

In addition, not all subgroups of women have shared in the decrease of invasive cervical cancer incidence rates. Washington data show increasing incidence of invasive cervical cancer through the 1980s for African Americans and other non-Caucasian women.⁸ Cervical cancer incidence rates in the United States are approximately two times higher for African Americans, Hispanics and Native Americans than for Caucasians.⁹ Much of these differences can be explained by socioeconomic status effects, particularly reduced frequency of Pap smear screening.¹⁰

Over 80% of the invasive cervical cancer cases occur among women age 35 and older; 25% are in women over 65.¹¹ While women less than 35 years of age are more frequently diagnosed with in situ cervical cancer, women age 35 and older are at increased risk for invasive cervical cancer, due to their lower likelihood of being screened for this disease.¹²

Stage at Diagnosis and Survival. Statewide in 1993, 41.6% of all invasive cervical cancer cases

distant). Low-income, lack of education and other indicators of low socioeconomic status have been shown to be associated with higher incidence of invasive cervical cancer and diagnosis at later stages.¹³ Women of color are diagnosed with cervical cancer at later stages, as well. Recent data for King County show late stage cervical cancer accounting for 50% of the African-American cases, compared with 31% of cases among Caucasian women.¹⁴

The overall 5-year survival rate for invasive cervical cancer is 66%; however, survival varies dramatically depending on the stage at which the cancer is diagnosed. Survival approaches 100% for cervical cancers detected in the in situ stage before invasion occurs and is 88% for locally invasive disease.¹⁵ Five-year survival falls to 48 percent for cervical cancer detected in the regional stage and to 13 percent for disease found in the distant stage at the time of diagnosis.¹⁶

Hospitalizations. In 1994, there were 266 hospitalizations among Washington residents for cervical cancer related diagnosis and/or treatment, a rate of 10/100,000 females. This represents a slight decline from the rate of 11/100,000 in 1990. 1994 hospitalizations associated with cervical cancer resulted in charges totaling over \$2 million.

Risk and Protective Factors

Screening Effectiveness. There is evidence that screening of women who are sexually active or who have reached 18 years of age with regular Pap smears reduces cervical cancer mortality. The upper age limit at which screening ceases to be effective is unknown. Screening every three years reduces a woman's lifetime risk of developing invasive cervical cancer by about 90%.¹⁷

Barriers to Screening. Several important barriers preventing many women from receiving routine cervical cancer screening have been identified.¹⁸ Among these are: 1) a tendency for women leaving childbearing age to no longer seek annual gynecological care; 2) a physician attitude that cervical cancer only occurs in younger women, resulting in failure to routinely recommend and provide Pap smears for older female patients; and 3) specifically for older and low-income women, the lack of a designated primary care provider further decreases the likelihood of receiving routine Pap screening.

were diagnosed at advanced stages (regional or

Sexual Behavior. Certain types of human papillomavirus (HPV), transmitted through sexual contact, have been identified as the primary etiologic agent in cervical cancer.¹⁹ A history of multiple sexual partners, early age at first intercourse, and history of sexually transmitted diseases are major risk factors for development of this disease.

High Risk Groups

Women 35 years of age or older, women of color, and women of lower socioeconomic status are at higher risk for invasive cervical cancer, due to their lower likelihood of Pap smear screening. Incidence rates support the need for increased Pap smear utilization by these groups.

Intervention Points, Strategies and Effectiveness

The goal of public health strategies is to reduce cervical cancer mortality by increasing utilization of screening services, particularly among low-income, older and racial and ethnic minority women who are currently less likely to be screened. Achievement of this goal will require further efforts to reduce barriers to screening and to assure the availability of high quality screening and follow-up treatment services.

The strategies known to be effective in decreasing mortality and increasing early detection of cervical cancer include an emphasis on outreach and recruitment of high risk populations, professional education, quality assurance, and health care systems change to assure the provision of coordinated, culturally appropriate, affordable services.²⁰

Effective public education and outreach to high risk populations will: 1) enhance understanding, motivation, and ability to seek regular cervical cancer screening; 2) ensure adherence to recommended screening and follow-up regimens; and 3) encourage pursuit of appropriate treatment, as necessary.

Effective cervical cancer screening involves a complex sequence of interdependent steps, each of which must be subject to evaluation and quality assurance. Key components of the process include obtaining an adequate sample, proper fixation of the specimen, accurate laboratory interpretation, clear and timely communication of the results to the primary care practitioner, feedback systems

linking results with health outcomes, and appropriate patient management based on the results.

Approximately half of all false negative Pap smears (those that fail to detect an abnormality when present) are attributable to inadequate specimens; the remainder are due to laboratory error.²¹ Effective quality assurance strategies focus on both improved specimen collection by the primary care practitioner and laboratory quality control. Proficiency testing for technicians reading Pap smears and for laboratory adherence to quality standards is critical.

Education strategies for physicians, nurses, and other health care providers address knowledge, attitudes, and behaviors related to appropriate screening recommendations, clinical practice of screening technique, and diagnostic follow-up and treatment.²²

Surveillance and evaluation are strategies important to overall cancer control efforts. Particularly, due to the preventability of cervical cancer deaths, all deaths from this disease should be routinely reviewed.²³

The Washington State Breast and Cervical Health Program is an example of a program incorporating many of the features of the national strategic plan. The program works collaboratively with local communities to build or enhance local capacity to provide quality services and outreach related to cervical cancer. It provides payment to health care providers for Pap smears, as well as for breast cancer screening, among low-income and older women and women of color. It also incorporates strong components of outreach, public and professional education, quality assurance, tracking, and surveillance while working closely with an array of community partners. Evaluation of this and other similar programs with regard to their success in increasing screening rates and shifting stage at diagnosis among the target populations is underway.

See related sections on All Cancer, Tobacco Use and Exposure, Sexual Behavior, and Primary Health Care Access.

Data Sources

State Death Data: Washington Department of Health, Center for Health Statistics.

National Death Data: National Center for Health Statistics and SEER Cancer Statistics Review.

State Hospitalization Data: Washington Department of Health, Comprehensive Hospital Abstract Reporting System (CHARS).

State Cancer Incidence Data: Washington Department of Health, Washington State Cancer Registry.

State mammography screening data: Washington Department of Health, Behavioral Risk Factor Surveillance System (BRFSS)

For More Information

Washington Department of Health, Breast and Cervical Health Program
(360) 586-6082

Technical Notes

Age adjustment: Rates presented in this section are age-adjusted to the 1970 US population. The 1994 overall Washington State mortality rate for cervical cancer, adjusted to the 1940 US population, was 2/100,000 females. See technical appendix.

Pap smear screening rates: Ever screening reflects the rate among all women ages 18 and older; screening in the last three years reflects the rate among women ages 18 and older who have not had a hysterectomy.

Race and ethnicity: See technical appendix.

Endnotes:

¹ USDHHS. National Strategic Plan for the early Detection and Control of Breast and Cervical Cancers. Centers for Disease Control and Prevention, Atlanta, GA. 1991.

² U.S. Preventive Services Task Force. Guide to clinical preventive services, 2nd ed. Williams and Wilkins, Baltimore. 1996.

³ Brownson RC, Reif JS, Alavanja MCR, Bal DG. Cancer. In: Brownson RC, Remington PL, Davis JR Eds. *Chronic Disease Epidemiology and Control*. American Public Health Association, Washington, D.C. 1993.

⁴ National Cancer Institute. "Screening for Cervical Cancer." PDQ Supportive Care / Screening / Prevention Information. NCI, Bethesda, MD. 1995.

⁵ National Center for Health Statistics. "Health People 2000 Review, 1994." Public Health Service, Hyattsville, MD. 1995.

⁶ Brownson RC, Reif JS, Alavanja MCR, Bal DG. Cancer. In: Brownson RC, Remington PL, Davis JR Eds. *Chronic Disease Epidemiology and Control*. American Public Health Association, Washington, D.C. 1993:137-67.

⁷ Ibid.

⁸ Washington State Department of Health. "Opportunities for Prevention: County Profiles for Five Major Cancers." WSDOH, Olympia, WA. 1995.

⁹ Eddy DM. Screening for Cervical Cancer. In: Eddy DM, Ed. *Common Screening Tests*. American College of Physicians, Philadelphia. 1991:255-85.

¹⁰ National Cancer Institute. "Screening for Cervical Cancer." PDQ Supportive Care / Screening / Prevention Information. NCI, Bethesda, MD. 1995.

¹¹ Ibid.

¹² Ibid.

¹³ Ibid.

¹⁴ Seattle King County Department of Public Health. "Breast & Cervical Cancer and The Breast & Cervical Health Program in King County, 1995" SKCDPHP, Seattle, WA. 1996.

¹⁵ National Cancer Institute. "Screening for Cervical Cancer." PDQ Supportive Care / Screening / Prevention Information. NCI, Bethesda, MD. 1995.

¹⁶ Cancer Surveillance System. "Cancer in Western Washington State: 1974-1991." Fred Hutchinson Cancer Research Center, Seattle, WA. 1993.

¹⁷ Eddy DM. Screening for Cervical Cancer. In: Eddy DM, Ed. *Common Screening Tests*. American College of Physicians, Philadelphia. 1991:255-85.

¹⁸ AMC Cancer Research Center. "Breast and Cervical Screening, Barriers and Use Among Specific Populations, A Literature Review." AMCCRC, Denver, CO. Supplement (October 1991 - May 1992); Supplement 2 (June 1992 - May 1993).

¹⁹ National Cancer Institute. "Prevention of Cervical Cancer." PDQ Supportive Care / Screening / Prevention Information. NCI, Bethesda, MD. 1995.

²⁰ USDHHS. National Strategic Plan for the Early Detection and Control of Breast and Cervical Cancers. Centers for Disease Control and Prevention, Atlanta, GA. 1991.

²¹ Ibid.

²² Ibid.

²³ Ibid.